

REMARKS

The Office Action dated February 6, 2003, has been received and reviewed. Claims 1-32 are pending in this application. Claims 26-32 have been withdrawn from further consideration by the Examiner as being drawn to a non-elected invention. Applicants respectfully request reconsideration of the application in view of the amendments and arguments below.

I. Claim Amendments

Applicants have amended Claim 1. Claim 1 has been amended to incorporate the subject matter of Claim 2 and to specify that the microspheres when in an expanded state, release only a part of its contents so as to de-activate the bonding forces at the interface where it has been applied as noted in the specification on page 8, lines 17-22. Accordingly, Applicants respectfully request reconsideration of the application.

II. Rejections under 35 U.S.C. § 103(a)

Claims 1-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hartman et al., Everaerts et al., Makhlof et al., Gehlsen or EP 0717091. Applicants respectfully traverse this rejection for the reason set forth below.

To establish a prima facie case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claim, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). To support combining references, evidence of a suggestion, teaching, or motivation to combine must be clear and particular, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). The Court of Appeals for the Federal Circuit has also stated that, to support combining or modifying references, there must be particular evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components

for combination in the manner claimed. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000). Respectfully, as will be discussed below, the Official Action fails to meet the requirements for a showing of obviousness under 35 U.S.C. § 103.

Applicants submit that Hartman et al. do not teach or suggest the present invention. Hartman et al. discloses a double-sided multi-layered tape, containing a substantially uniform distribution of pre-formed voids (See, Fig. 1). The voids, which are at least an order of magnitude greater than those of the microspheres, are generated by a blowing agent and not by thermally expandable microspheres. The voids give the core layer compressibility. Thus, the voids are not formed as a result of thermoexpandable microspheres. Moreover, the voids do not deactivate the adhesive properties of the composition at an interface where it is applied/attached. In other words, Hartman et al.'s thermoexpandable microspheres are expanded not to deactivate chemical bonding, but to generate large preformed voids to give core layer compressibility.

As we have previously argued, Hartman et al. state at column 12, lines 33 to 37, that its tape comprises "a hot formed multilayer carrier including a core layer formed of a thermoplastic elastomer matrix containing a substantially uniform distribution of voids generated by a blowing agent comprising thermally expandable microspheres and at least one skin layer formed of a film-forming thermoplastic polymer, said core layer having a void volume determined by the proportion of blowing agent in the core layer and by the degree of expansion thereof. . . ." This differs from the present invention where, as recited in claim 1, the microspheres each comprise a shell that encapsulates at least one expandable gas which evaporates without creating voids in the matrix, as the microspheres remain integral with their expanded skin. Thus, in the expanded matrix of the present invention, there are no voids, but instead, expanded microspheres having their expanding liquid vaporized through their shells without creating any voids in the matrix. As a consequence, the expanded microspheres of the present application remain integral, and part of the blowing agent remains encapsulated inside the microsphere shell in a liquid state with the air filling the rest of its expanded volume in order to remain expanded. Therefore, the present invention generates a cotton-wool like residue at the interface, thus enabling the chemical bonding to reduce to zero. The present invention thus has no voids in the matrix, no compression and no change in the consistency of the structure of the adhesive matrix.

Applicants further submit that there is no teaching nor suggestion to one of skill in the art in Hartman et al. to provide a composition with thermoexpandable microspheres that can release only part of their contents at an interface to deactivate an adhesive without forming voids in the matrix as taught by the present invention. Accordingly, Applicants submit that the present invention is not obvious in view of Hartman et al. and that the rejection be withdrawn.

Everaerts et al. similarly fail to teach or suggest the present invention. Everaerts et al. teach a clear and essentially colorless adhesive containing an abundance of polymerizing materials that, by heating or by subjecting the material to UV radiation, realizes a tackified pressure sensitive tape for use with material substrates such as metal and plastic panels. Everaerts et al. disclose a foam-like pressure sensitive adhesive tape/sheet. The contribution of the thermally expanded plastic microspheres is to create a pressure sensitive tape by foaming in order to make a tape with suitable pressure tackiness on the substrate which, due to the expanded higher thickness, gives more rigidity (column 10 lines 29-44 and 54-62). Thus, Everaerts et al.'s microspheres are used for creating pressure from foaming voids. As previously noted above, there are no voids in the present invention. Applicants further note that there is no teaching in Everaerts et al. towards thermally expandable microspheres for de-bonding or adhesion deactivating at an interface where the composition is applied as with the present invention as recited in Claim 1 of the present invention. Thus, Everaerts et al. do not teach the presently claimed invention of "a composition comprising an adhesive agent and dispersed therein thermoexpandable microcapsules." Therefore, Applicants respectfully request withdrawal of this 35 U.S.C. § 103(a) rejection.

Applicants submit that the Makhlouf et al. reference also fails to teach or suggest the presented invention. Makhlouf et al. disclose a method of reinforcing thin rigid plates by spraying a curable composition onto one side of the rigid plate and curing the polymer composition while only in contact with the rigid plate. Makhlouf et al. disclose thermosetting compositions containing thermosetting epoxy resins, expandable microspheres, particulate reinforcing materials such as milled glass and carbon fibers. The thermally expanded microspheres are used to avoid shrinkage of the composite thermosetting materials (column 3 lines 46-47), by using microspheres to increase the volume of the plastic or reduce its density. There is no disclosure nor any teaching of their expansion causing adhesion deactivation of

bonded surfaces as recited in Claim 1 of the present invention. Accordingly, Applicants submit that the present invention is not obvious in view of Makhoul et al.

Gehlsen et al. also fail to teach or suggest the present invention. Gehlsen et al. teach the production of foam articles with substantially smooth surfaces (column 2 line 57 –60), “foam-in-place” articles (column 5 line 16-18), pressure sensitive adhesives and adhesive foams (column 5 lines 6-9). Gehlsen et al. disclose the production of foam articles formed by melt mixing a polymer composition and microspheres. The expandable and unexpandable microspheres are used for producing a foam, *i.e.*, a matrix with voids. As noted *supra* in the discussion under Hartman et al., the present invention is not a matrix with voids. Thus, there is no suggestion nor any teaching of the microspheres causing adhesion deactivation of bonded surfaces by partial leakage of their contents as recited in Claim 1 of the present invention. Applicants' compositions comprise thermoexpandable microspheres that are adhesion de-activating, not activating as taught by Gehlsen et al. (See, column 5, lines 8-9) and thus substantially differ from this reference. Additionally, Applicants note that the present invention includes examples of hot melt adhesive compositions (See, Examples of Gehlsen et al.). Therefore, the present invention is not obvious in view of Gehlsen et al. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections based on Gehlsen.

Additionally, Applicants submit that EP 0717091 (hereinafter “the '091 application”) fails to teach or suggest the present invention. The '091 application teaches a pressure sensitive foam comprising a complexity of polymer materials and temperature activated expandable particulate materials. The expandable particulate materials comprise a polymeric shell and a volatilizable liquid core to provide volume change. There is no disclosure nor any teaching of the microspheres causing adhesion deactivation of bonded surfaces by partial leakage of their contents as recited in Claim 1 of the present invention. Therefore, Applicants respectfully request reconsideration of the claims in view of these arguments.

Applicants further submit that the Office Action has not distinguished between expanded microspheres in packaging which become nearly 75% of the total expanded volume and foam materials generated by blowing agent in some way, distributed in the plastifiers of the matrix composition or in some cases coming from the blowing agent after breaking the microsphere shell. In creating a bonding composition in adhesive materials it is necessary to use the microspheres as source of foaming agent to increase the volume but this action

strongly decreases the mechanical properties of the adhesive tape. When creating a chemical de-bonding, as with the present invention, it is necessary to use the microspheres only with a de-bonding activator at interfaces without degrading or creating voids in the adhesive.

Applicants submit that amended claim 1 differentiates the present invention from the cited references as not only does this claim not involve foams, the use of foams or methods of making foamed articles or adhesive tape, but rather the present claims are concerned with the deactivation of bonding at an interface on which the composition is applied. Thus, the present invention differs from the cited references as its adhesive compositions comprising microspheres use the microspheres to de-bond the adhesives either in their structure, (to weaken their cohesive strength), or at their interface, to create a zero shear stress at the adhesive surface by releasing only a part of their contents. The cited references fail to teach or suggest the present invention. Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections to the claims of the present invention.

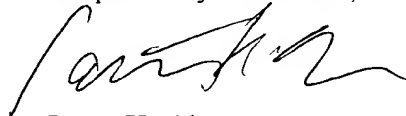
III. Rejections under 35 U.S.C. § 112, second paragraph

Claim 4 stand rejected under 35 U.S.C. § 112, second paragraph as allegedly the phrase "MS polymer" is indefinite. Applicants submit that this phrase is well known in the art as modified silicon sealant material. Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 112, second paragraph to Claim 4.

CONCLUSION

In view of the remarks presented herein, Applicants respectfully submit that the claims in the instant application define patentable subject matter. If questions should remain after consideration of the foregoing, the Examiner is kindly requested to contact Applicants' attorney at the address or telephone number given herein.

Respectfully submitted,



Jarett K. Abramson
Registration No. 47,376

In re: Bain et al.
Serial No.: 09/980,219
Filed: April 18, 2002
Page 11 of 11

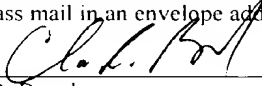


20792

PATENT TRADEMARK OFFICE

Certificate of Mailing under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on April 2, 2003.



Clara R. Beard